Remarks:

The above amendments and these remarks are responsive to the final Office action dated August 23, 2007, and are being filed under 37 C.F.R. § 1.116. Claims 1–20 were pending in the application, prior to entry of the present amendments to the claims. In the Office action, the Examiner (1) objected to claim 1 because of an alleged informality; (2) rejected claims 1–10 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite; (3) rejected claims 1–7 and 11–17 under 35 U.S.C. § 102(e) as being anticipated; and (4) rejected each of the pending claims as being unpatentable under 35 U.S.C. § 103(a) over one or more combinations of references. Applicants traverse the rejections, contending that each of the pending claims is definite and is not anticipated by or rendered obvious over the cited references, taken alone or in combination.

Nevertheless, to expedite issuance of a patent, and to more particularly point out and distinctly claim aspects of the invention that applicants would like to patent now, applicants have (1) canceled claims 5–10 and 18, without prejudice; (2) amended claims 1, 2, 11, 12, 16, and 19; and (3) added two new claims, namely, claims 21 and 22. However, applicants reserve the right to pursue any of the canceled and/or amended claims, in original or distinctly amended form, at a later time. Furthermore, applicants have presented remarks showing that all of the pending claims are definite and patentable over the cited references, taken alone or in combination. Accordingly, applicants respectfully request reconsideration of the application and prompt allowance of all of the pending claims.

I. Claim Amendments

The present communication amends claims 1, 2, 11, 12, 16, and 19; and adds two new claims, namely, claims 21 and 22. Each amendment to an existing claim and each new claim are supported fully by the application. Exemplary support (and/or an explanation) for each amendment and new claim is provided, without limitation, by the following table:

Claim	Support (and/or an Explanation)
1 (Independent)	Original Claim 10 (Also addresses the objection and the rejections under Section 112, second paragraph)
2	(Improves clarity)
11 (Independent)	Page 3, lines 1–3
12	(Improves clarity)
16	Page 5, lines 15–22
19	(Changes dependency from canceled claim 18 to independent claim 11 and improves clarity)
21 (New)	Page 2, lines 27–29
22 (New) (Independent)	Claim 1; Page 5, lines 28–31

II. Claim Objection

The Examiner objected to claim 1 because of an alleged informality in the claim. In particular, the Examiner stated that it is not clear whether the "object" is different than the "apparatus" or the "ingestible object." In response, applicants have amended claim 1 to remove "object" from the preamble. Accordingly, it should now be clear that the

"apparatus" of the preamble comprises an "ingestible object." Applicants submit that the objection to claim 1 should be withdrawn in light of the amendment to claim 1.

Applicants also have amended the preamble of claim 11 to replace "object" with "ingestible object." This amendment to claim 11 is intended to improve clarity and to prevent a similar objection to claim 11 in the future.

III. Claim Rejections – 35 U.S.C. § 112

The Examiner rejected claims 1–10 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. In particular, the Examiner stated that it is not clear whether the sensing device in independent claim 1 is part of the claimed invention since applicants did not positively recite a "sensing device" as part of the claimed apparatus. In response, applicants have amended the preamble of claim 1 to recite "[a]n apparatus for use with a sensing device to detect ingestion." Applicants have introduced this amendment to clarify that the sensing device is not part of the claimed apparatus in claim 1 (and thus not in dependent claims 2–4). Accordingly, applicants submit that claim 1 meets all the requirements of Section 112, second paragraph, and thus the rejections of claim 1 and dependent claims 2–4 under Section 112 should be withdrawn.

IV. Claim Rejections – 35 U.S.C. §§ 102 and 103

The Examiner rejected all of the pending claims as being unpatentable over prior art. Claims 1–7 and 11–17 were rejected (1) under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. 2003/0191430 to D'Andrea et al. ("D'Andrea"), and (2) under 35 U.S.C. § 103(a) as being unpatentable over D'Andrea in view of U.S. Patent No. 5,697,384 to Miyawaki et al. ("Miyawaki"). In addition, claims 1,

7–11, and 17–20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0132226 to Nair et al. ("Nair") in view of Miyawaki. Applicants traverse the rejections, contending that all of the claims are patentable over the cited references, taken alone or in combination. Nevertheless, for the reasons set forth above, applicants have amended claims 1, 11, 16, and 19; and have added two new claims, namely, claims 21 and 22. Each of the pending claims is patentable at least for the reasons set forth below.

A. *Claims 1–4*

Independent claim 1, as amended, reads as follows in clean form:

> 1. (Currently Amended) An apparatus for use with a sensing device to detect ingestion, comprising:
>
> an ingestible object; and
>
> an identification circuit coupled to the ingestible object, the identification circuit upon ingestion of the ingestible object enabling electromagnetic coupling to the sensing device such that an electromagnetic field produced by the sensing device is altered by the identification circuit,
>
> wherein the identification circuit is configured such that at least one part of the identification circuit dissolves as a result of ingestion to produce a change in electromagnetic coupling to the sensing device, thereby indicating that the ingestible object has been ingested.

The present communication amends claim 1 based generally on claim 10 (now canceled). In the Office action, claim 10 was rejected as being obvious over Nair and Miyawaki. Applicants traverse the rejections because neither of the cited references, taken alone or in combination, discloses, teaches, or suggests every element of amended claim 1. For example, the cited references do not disclose, teach, or suggest

an identification circuit "configured such that at least one part of the identification circuit dissolves as a result of ingestion to produce a change in electromagnetic coupling to the sensing device, thereby indicating that the ingestible object has been ingested."

Nair relates to an ingestible electronic capsule. Figures 1 and 2 of Nair, which are reproduced here to facilitate review, illustrate an electronic capsule 10. The capsule includes a sensor membrane 12, an electronic device 14 interrelated to sensor membrane 12, a transducer 16, and a power source 18. The sensor membrane "is coated with chemicals that have specific interactions in the presence of a specific condition, such as a level of enzyme, antigen, antibody, pH, etc." (paragraph [0018]). Furthermore, the sensor membrane is disclosed to be covered initially by a dissolvable membrane 11 (not shown in Figures 1 and 2) that serves as a protective cover for the sensor membrane against environmental conditions such as stomach acids and degradative enzymes. Accordingly, the dissolvable membrane shields the sensor membrane from chemical exposure. The dissolvable membrane is manufactured to dissolve at a specific time, dependent upon use of the capsule, such as upon contact with saliva or after the capsule has passed through the alimentary canal.

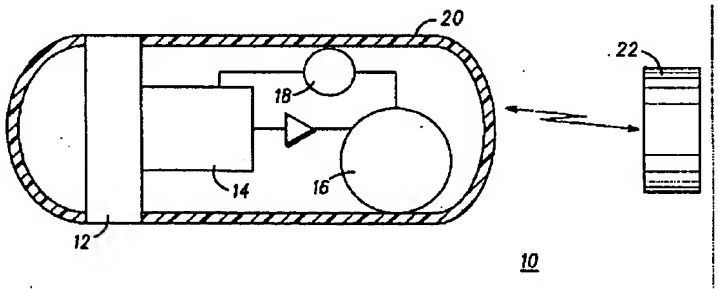


FIG. 1

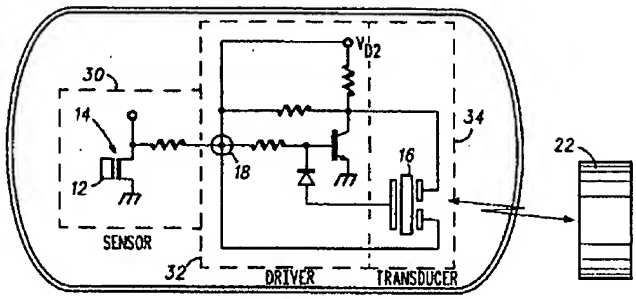
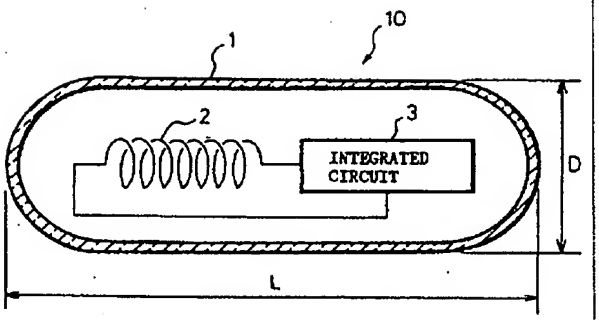


FIG. 2

The Examiner, in rejecting claim 10, asserted that dissolvable membrane 11 of capsule 10 is part of electronic device 14. Applicants respectfully disagree. Dissolvable membrane 11 is disclosed to function only as a protective cover over sensor membrane 12. The dissolvable membrane is not disclosed to participate in the electrical/electronic operation of electronic device 14. For example, dissolvable membrane 11 is not disclosed to have any role in conducting an electrical current, modulating an electrical current, or storing electrical charge, among other possible roles for a part of a circuit. Accordingly, Nair's dissolvable membrane 11 is not part of a circuit and particularly is not part of an identification circuit as recited in applicants' claim 1.

Miyawaki relates to an internal identification apparatus for animals. Figure 1 of Miyawaki, which is reproduced here to facilitate review, illustrates an embodiment of an identification apparatus 10 in sectional view. Apparatus 10 includes a capsule 1 containing a coil antenna 2 and an integrated circuit 3. Capsule 1 is disclosed to be formed of a material that is resistive to gastric juices. No part of apparatus 10 is configured to dissolve as a result of ingestion to produce a change in electromagnetic coupling.

Fig.1



D'Andrea was not cited in the rejection of claim 10. Furthermore, the reference does not disclose any part of a circuit that dissolves, and thus does not complement the defect of Nair and Miyawaki.

In summary, Nair, Miyawaki, and D'Andrea, taken alone or in combination, do not disclose, teach, or suggest every element of claim 1. Accordingly, claim 1 should be allowed. In addition, claims 2–4, which depend from claim 1, also should be allowed for at least the same reasons as claim 1.

B. Claims 11–17 and 19–21

i. Claim 11

Independent claim 11, as amended, reads as follows in clean form:

11. (Currently Amended) A method of detecting ingestion of an ingestible object, comprising:

coupling an identification circuit to the ingestible object, the identification circuit upon ingestion of the ingestible object enabling electromagnetic coupling to a sensing device such that an electromagnetic field produced by the sensing device is altered by the identification circuit to indicate ingestion of the ingestible object; and

monitoring electromagnetic coupling of the identification circuit to the sensing device to determine whether the ingestible object has been ingested.

Claim 11 was rejected as being anticipated by D'Andrea and as being obvious over a combination of D'Andrea and Miyawaki and also over a combination of Nair and Miyawaki. Applicants traverse the rejections because none of the cited references, taken alone or in combination, discloses, teaches, or suggests every element of amended claim 11. For example, the cited references do not disclose, teach, or suggest "monitoring electromagnetic coupling of the ingestible object to the sensing device to determine whether the ingestible object has been ingested."

D'Andrea relates to a method of using, and determining the location of, an ingestible capsule. The capsule is disclosed to include various sensors, including a pressure sensor, a temperature sensor, a pH sensor, a conductance sensor, and a sensor of an analyte. The reference states that the invention provides "an improved method of determining the real-time location of the capsule in a mammalian body or tract" (paragraph [0048]; emphasis added), for example, based on physiological parameters sensed by the capsule. In other words, D'Andrea is concerned with obtaining sensor readings after the capsule has been ingested. Accordingly, D'Andrea does not disclose, teach, or suggest monitoring any type of signal to determine whether the capsule has been ingested. Therefore, D'Andrea particularly does not disclose, teach, or suggest "monitoring electromagnetic coupling of the ingestible object to the sensing device to determine whether the ingestible object has been ingested," as recited by applicants' amended claim 11.

Both Nair and Miyawaki, like D'Andrea, are concerned with obtaining information from an ingested apparatus/capsule after ingestion. Accordingly, neither Nair nor Miyawaki discloses, teaches, or suggests "monitoring electromagnetic coupling of the ingestible object to the sensing device to determine whether the ingestible object has been ingested," as recited by applicants' amended claim 11.

In summary, none of the cited references, taken alone or in combination, discloses, teaches, or suggest every element of amended claim 11. Claim 11 thus should be allowed. In addition, claims 12–17 and 19–21, which depend ultimately from claim 11, also should be allowed for at least the same reasons as claim 11.

ii. Claims 16, 17, 19, 20, and 21

Many of dependent claims 12–17 and 19–21 further patentably distinguish the claimed invention from the cited references. For example, claims 16, 17, and 19–21 are discussed below.

Claim 16 depends from claim 15, and in combination with claim 15 recites "wherein the electromagnetic coupling of the identification circuit is different for at least two different locations of the ingestible object," and "wherein one of the at least two different locations is inside a container for storage of the ingestible object before ingestion and another of the at least two different locations is in an ingestion system." None of the cited references, taken alone or in combination, discloses, teaches, or suggests the use of a storage container to provide different electromagnetic coupling.

Claim 17 recites "wherein an electromagnetic parameter of the identification circuit during the ingestion is altered to alter the electromagnetic coupling." None of the

cited references, taken alone or in combination, discloses, teaches, or suggests alteration of an electromagnetic parameter during ingestion.

Claim 19 recites "wherein the ingestible object includes a layer that is opaque to electromagnetic signals within a wavelength band and configured to be dissolved as a result of the ingestion, to produce a change in the electromagnetic coupling to the sensing device, thereby indicating that the ingestible object has been ingested." None of the cited references discloses, teaches, or suggests a layer that is opaque to electromagnetic signals within a wavelength band and particularly not such a layer configured to be dissolved as a result of ingestion. For example, dissolvable membrane 11 of Nair restricts chemical exposure.

Claim 20 recites "wherein at least one part of the identification circuit is dissolved during the ingestion." None of the cited references disclose, teach, or suggest any part of an identification circuit that dissolves, as described above in relation to claim 1.

New dependent claim 21 recites "wherein coupling includes coupling a plurality of ingestible objects to identification circuits, and wherein the method further comprises incrementing a counter after ingestion of each ingestible object." None of the cited references involves determining whether an ingestible object has been ingested and thus the cited references, taken alone or in combination, particularly do not disclose, teach, or suggest incrementing a counter after ingestion of each ingestible object.

In summary, dependent claims 16, 17, 19–21, among others, should be allowed, not only for depending from claim 11 but also for reciting further patentable distinctions.

C. *Claim 22*

New independent claim 22 reads as follows:

> 22. (New) An apparatus for use with a sensing device to detect ingestion, comprising:
>
> an ingestible object; and
>
> an identification circuit coupled to the ingestible object, the identification circuit enabling electromagnetic coupling to the sensing device such that an electromagnetic field produced by the sensing device can be altered by the identification circuit,
>
> wherein the ingestible object includes a layer that is opaque to electromagnetic signals within a wavelength band and configured to be dissolved during ingestion, to produce a change in electromagnetic coupling to the sensing device, thereby indicating that the ingestible object has been ingested.

Claim 22 is patentable over the cited references because none of the references, taken alone or in combination, discloses, teaches, or suggest every element of claim 22. For example, the cited references do not disclose, teach, or suggest an ingestible object including "a layer that is opaque to electromagnetic signals within a wavelength band and configured to be dissolved during ingestion, to produce a change in electromagnetic coupling to the sensing device."

In the Office action, the Examiner asserted that Nair discloses a layer that is opaque to electromagnetic signals within a wavelength band and dissolved during ingestion, citing paragraph [0019] of Nair. Applicants respectfully disagree. The cited paragraph of Nair states that dissolvable membrane 11 acts as a protective cover that

prevents exposure of sensor membrane 12 to the environment of the ingestion system, namely, the chemical environment. However, Nair does not disclose, teach, or suggest any capability of dissolvable membrane 11 to restrict exposure of sensor membrane 12 to electromagnetic signals within a wavelength band. The other cited references, taken alone or in combination, do not correct the defect of Nair. Accordingly, claim 22 should be allowed.

V. Conclusion

Applicants submit that this application is now in condition for allowance, in view of the above amendments and remarks. Accordingly, applicants respectfully request that the Examiner issue a Notice of Allowance covering all of the pending claims. If the Examiner has any questions, or if a telephone interview would in any way advance prosecution of the application, please contact the undersigned attorney of record.

Respectfully submitted,

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CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this correspondence is being facsimile transmitted to Examiner N. Natnithithadha, Group Art Unit 3735, Assistant Commissioner for Patents, at facsimile number (571) 273-8300 on October 17, 2007.

Christie A. Doolittle